

Work Order ID 669647

Thursday, March 03, 2011 8:58:28 AM



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Item ID:	D6101-003	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Saddle Billet, 7075					
Start Date:	3/3/2011	Start Qty:	20.00		Cust Item ID:	
Required Date:	3/16/2011	Req'd Qty:	20.00		Customer:	
Reference:						

Approvals:	Process Plan:	<u>CL</u>	Date:	<u>11/03/03</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	Rev B								

100		0.00							
	PURCHASING								
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>13604</u>								
	a) Description: Alluminum billet								
	b) 7.875" x 6.250" x 2.00" thick								
	c) Tolerance on all dimensions are +0.030"/-0.000"								
	d) Grain direction along 7.875" length								
	e) Material: 7075-T7351 (QQ-A-250/12)								
	f) Material certification required								
110		0.00							
	Receive & Inspect for Damage & Mat'l Certs								
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								

CL 11/03/03 20

CL 3/3/11 (20)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 66964

Thursday, March 03, 2011 8:58:28 AM



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Item ID: D6101-003

Accept



Setup Start



Revision ID:

Stop



Item Name: Saddle Billet, 7075

Start Date: 3/3/2011 Start Qty: 20.00



Cust Item ID:

Required Date: 3/16/2011 Req'd Qty: 20.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

QC6- Inspect dimensions to drawing

0.00



QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6101

11/3/28

20

130

Identify as per dwg & Stock Location: CNC

0.00



Packaging

Memo

0.00

Packaging

11/3/28

20

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/03/29
CY 11/03/29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Thursday, March 03, 2011 8:58:25 AM

Work Order ID: 66964



Parent Item: D6101-003



Parent Item Name: Saddle Billet, 7075



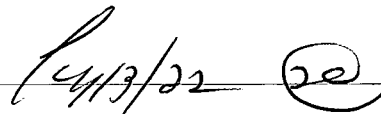
Start Date: 3/3/2011

Required Date: 3/16/2011

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A: ☐01.05.04☐New Issue☐EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-003P  7075-T7351 2X6.25X7.875		Purchased	No			110	Each	0.0000	1 	20		3/4/13/22 	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

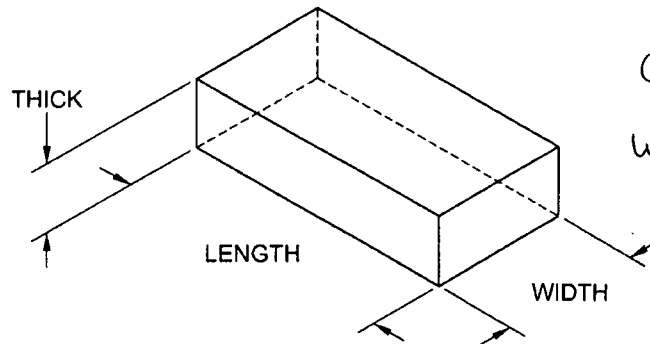
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SPECIFICATION CONTROL DRAWING



CL11/03/03
W/O: 66964

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
09/07/15/WB

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 2

No de Formulaire d'Emballage / Shipment No: 734296

Expédié de / Ship From:		Vendu à / Sold To:		Expédié à / Ship To:		Livré à / Deliver To:	
Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		WILL CALL-MONTREAL 835 SELKIRK AVENUE POINTE CLAIRE, QC H9R 3S2		WILL CALL-MONTREAL 835 SELKIRK AVENUE POINTE CLAIRE, QC H9R 3S2 CA	
Date d'expédition / Date Shipped	F.O.B.	Modalités de transport / Freight Terms		Transporteur / Carrier		N° du Bon de connaissance / BOL No	
21-MAR-11	ORIGIN	Prepaid		MANITOULIN		734296-2	

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
--	--

N° de commande / Order No		N° de ligne Line No	N° d'article / Item No	Description			
1321513		1	752237.MO	2.0000.PL.7075.T7351.ALUMINUM.US1.48.5000.144.5000 CUT 2SIDED TO 6.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.875")) X 7.875 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.875")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/12			
N° de bon de commande / Purchase Order No		Nbre de pièces / Part Number		Qté commandée / Ordered Qty		Qté Facturée / Invoice Qty	
13604		YOUR ITEM NUMBER: D6101-003		20 PCS		20 PCS	
Détails / Details		SHIP AS SOON AS REC'D					
N° de livraison / Delivery No :	Usine / Mill	N° de coulée / Heat Number	Code méc / Mech Id	Pièces / PCS	Largeur (Pouce)/ Width (IN)	Longueur (Pouce)/ Length (IN)	Qté expédiée/ Shipped Qty (LBS)
72897310		479523A3		20			203.22

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'État des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.
These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.
Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned



Castle Metals®

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

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for credit.			
Ce matériel a été reçu et inspecté par		Date:	
Reviewed by Authorized Castle Metals Representative:			

SHIP TO:

CASTLE % CASTLE AEROSPACE
3050 SOUTH HYDRAULIC
WICHITA, KS 67216

SOLD TO:

CAS AERO%AM CASTLE METALS
ATTN: BOB OHR %ACCTS PAYABLES
3400 NORTH WOLF ROAD
FRANKLIN PARK, IL 60131

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4173946

CUSTOMER PO NUMBER: 15158		WORK PACKAGE:		CUSTOMER PART NUMBER: 18225 AMC A97050-65		SHIP RUN/LOAD ID: 101848/6		GOVT CONTRACT NUMBER:	
KAISER ORDER NO: 1087340	LINE ITEM: 1	SHIP DATE: 13-OCT-2009	ALLOY: 7050	CLAD: BARE	TEMPER: T7451	PRODUCT DESCRIPTION: Sawed Plate			
WEIGHT SHIPPED: 5480 LB	QUANTITY: 2 PCS EST.	B/L NUMBER: 2024415		GAUGE: 2.5000 IN		DIAMETER/WIDTH: 72.500 IN		LENGTH: 144.500 IN	

Certified Specifications

AMS 4050/RevH
BAC 5439/RevH
BSS 7055/RevA
DPS 4.713/RevAH
MMS 1420/RevG

AMS-STD-2154
BAMS 518-003/RevNC
CSTI 006/RevC
GSS16100/RevG/Amd1
PS 21211/RevK

ASTM B 594/Rev06
BMS 7-323D TYPE I/RevD
DMS 2233/RevG
MIL-STD-2154

Test Code: 4170

Test Results

TEST REPORTS AND
DATA CONFIRMED



SHIP TO:

CASTLE % CASTLE AEROSPACE
3050 SOUTH HYDRAULIC
WICHITA, KS 67216

SOLD TO:

CAS AERO%AM CASTLE METALS
ATTN: BOB OHR %ACCTS PAYABLES
3400 NORTH WOLF ROAD
FRANKLIN PARK, IL 60131

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215

Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number

4172609

CUSTOMER PO NUMBER: 15127		WORK PACKAGE:	CUSTOMER PART NUMBER: 6857 AMC A97075-60		SHIP RUN/LOAD ID: 101635/14	GOV'T CONTRACT NUMBER:	
KAISER ORDER NO: 1087317	LINE ITEM: 1	SHIP DATE: 28-SEP-2009	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: Sawed Plate	
WEIGHT SHIPPED: 38880 LB	QUANTITY: 27 PCS EST.	B/L NUMBER: 2024208		GAUGE: 2.0000 IN	DIAMETER/WIDTH: 48.500 IN	LENGTH: 144.500 IN	

Certified Specifications

AMS 4078/RevG
ASTM B 209/Rev07
BSS 7055/RevA
DPS 4.713/RevAH
GSS16100/RevG/Amd1

AMS-QQ-A-250/12
ASTM B 594/Rev06
CMMP 025/RevS
EAC MS1011/RevE
MMS 159/RevN

AMS-STD-2154
BAC 5439/RevH
CSTI 006/RevC
GAMPS 9101/RevB
PS 21211/RevK

Test Code: 4297

Test Results

Lot: 479523A3 Cast 271

Drop 04

Ingot 2

(ASTM E8/B557)
(EN 2002-1)

Tensile: Temper
T7351

Dir / # Tests
LT / 2 (Min:Max)

Ultimate KSI (MPA)
72.2 : 72.2
(498 : 498)

Yield KSI (MPA)
60.3 : 60.6
(416 : 418)

Elongation %
12.1 : 12.5

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :
(MS/M) :

41.1 Min
23.8 Min

41.9 Max
24.3 Max

(ASTM E1251)

Chemistry:
Actual

SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
0.09	0.16	1.5	0.03	2.3	0.20	5.8	0.04	0.01	0.01	TOT 0.05

TEST REPORTS AND
DATA CONFIRMED



KAISER

ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4172609

Lot: 479578A7 Cast 268

Drop 20

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.8 : 72.6 (495 : 501)	60.5 : 61.7 (417 : 425)	12.1 : 12.4

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.4 Min	40.5 Max
(MS/M) :	23.4 Min	23.5 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.18	1.6	0.03	2.5	0.19	5.7	0.03	0.01	0.02	TOT 0.05

Lot: 479736A1 Cast 271

Drop 04

Ingot 4

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.0 : 72.5 (496 : 500)	60.5 : 60.5 (417 : 417)	12.3 : 13.3

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.9 Min	41.2 Max
(MS/M) :	23.7 Min	23.9 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.16	1.5	0.03	2.3	0.20	5.8	0.04	0.01	0.01	TOT 0.05

**KAISER
ALUMINUM**Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586**CERTIFIED TEST REPORT**Serial Number
4172609

Lot: 485637A3 Cast 271 Drop 28 Ingot 4

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.3 : 73.3 (499 : 505)	61.7 : 63.0 (425 : 434)	11.9 : 12.2

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.7 Min	41.5 Max
(MS/M) :	23.6 Min	24.1 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.5	0.05	2.3	0.21	5.7	0.03	0.01	0.01	TOT 0.05

Lot: 485640A7 Cast 271 Drop 28 Ingot 1

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	73.4 : 73.5 (506 : 507)	61.9 : 62.3 (427 : 430)	11.7 : 12.4

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.4 Min	41.5 Max
(MS/M) :	23.4 Min	24.1 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.5	0.05	2.3	0.21	5.7	0.03	0.01	0.01	TOT 0.05

ALLOY LIMITS

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075 MIN	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder



Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4172609

TEST NOTES

7075-T7351 plate 3.501-4.000" thick, if
ultrasonically inspected, meets requirements of CMMP025 per
SDR CMMP025-KaiserT-3. 7075-T7351 plate 4.001-5.000" thick,
if ultrasonically inspected, meets requirements of CMMP025
per
SDR CMMP025-KaiserT-2.

Metal represented by this test report was immersion
ultrasonically tested from one side and meets the Class A
and Class B requirements of all specifications referenced
on this test report.

CERTIFICATION

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE UNITED STATES OF AMERICA OR A QUALIFYING COUNTRY PER DFARS 225.872-1(a), WAS MANUFACTURED IN THE UNITED STATES OF AMERICA, AND MEETS THE REQUIREMENTS OF DFARS 252.225 FOR DOMESTIC CONTENT. THIS MATERIAL HAS BEEN INSPECTED, TESTED, AND FOUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT TREATED COMPLIES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF KAISER ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO-9001:2000 CERTIFIED.

BILL POYNOR, LABORATORIES SUPERVISOR

A handwritten signature in black ink, appearing to read "Bill Poyner", written over a horizontal line.